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4/94
Supersedes 246613
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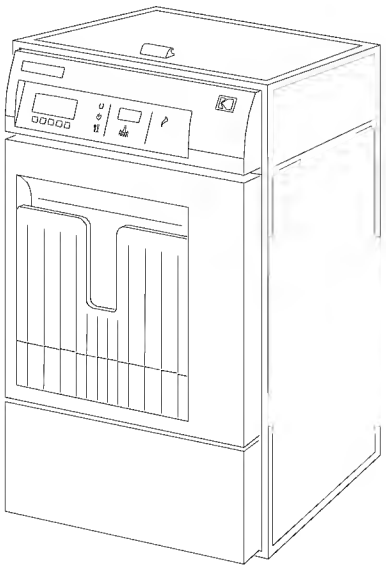
SITE SPECIFICATIONS

for the

Kodak X-Omat 480 RA Processor



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WARNING

To avoid hazardous conditions, keep floors and floor coverings around your *Kodak X-Omat* Processors and associated drains clean and dry at all times. Any accumulation of fluids from mixing tanks, drain lines, etc., should be cleaned up immediately. In the event of an accumulation of liquid due to backup, overflow, or other malfunctions of the drain associated with your *X-Omat* Processor, call a plumber or other contractor to correct any problem with the drain. Kodak accepts no responsibility or liability whatsoever for the serviceability of any drain connected to or associated with a *Kodak X-Omat* Processor. Such drains are the sole responsibility of the customer.

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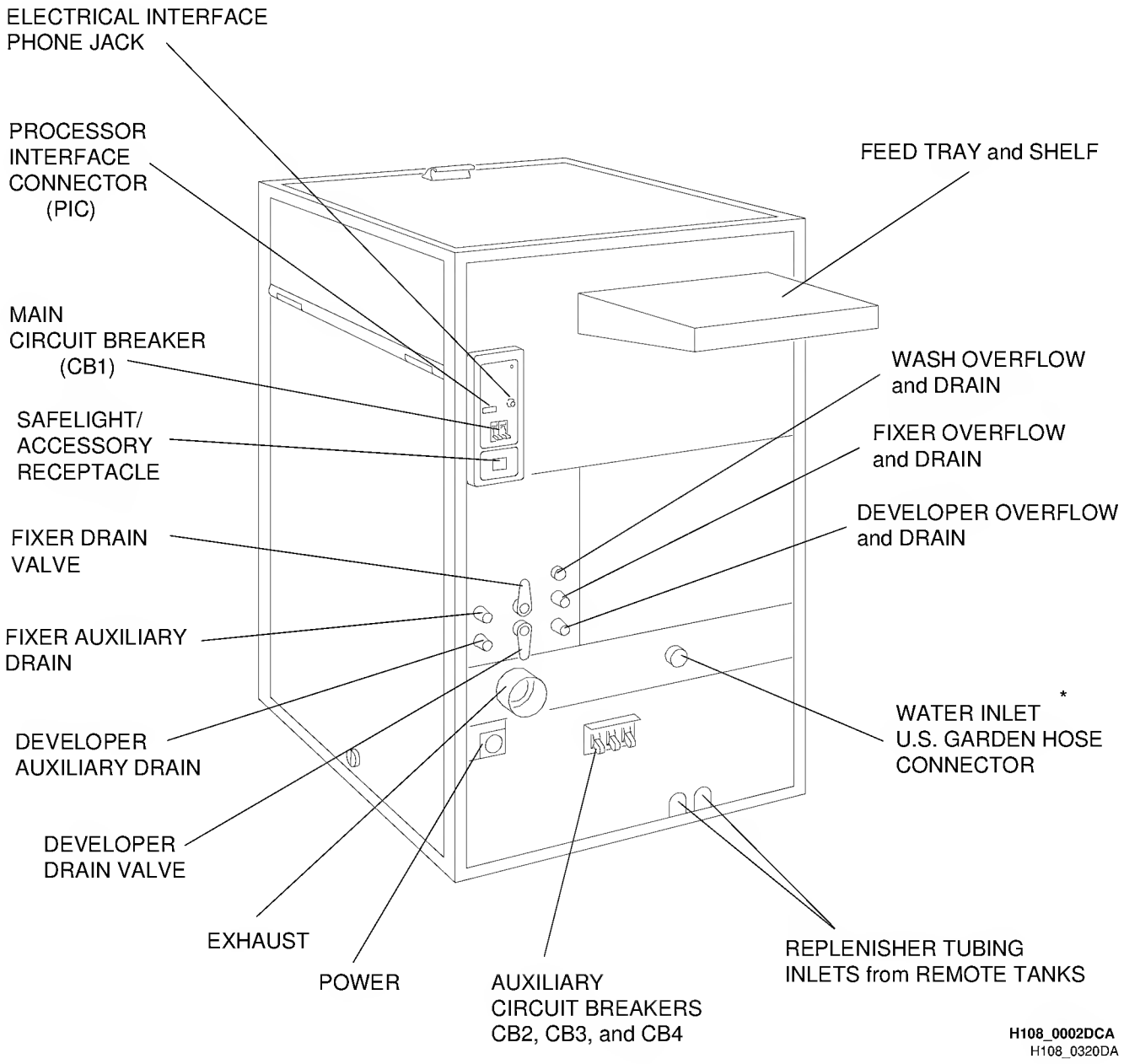


Figure 1 Feed-End View

*** Supplied in the pre-pack is an adapter for 1/2-inch NPT.**

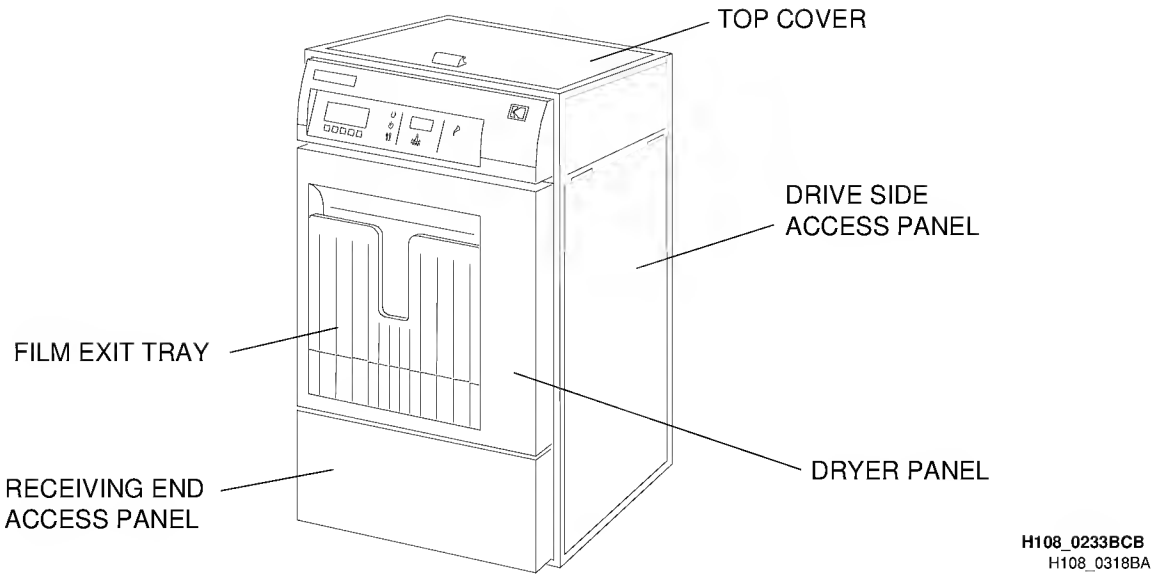


Figure 2 Receiving-End View

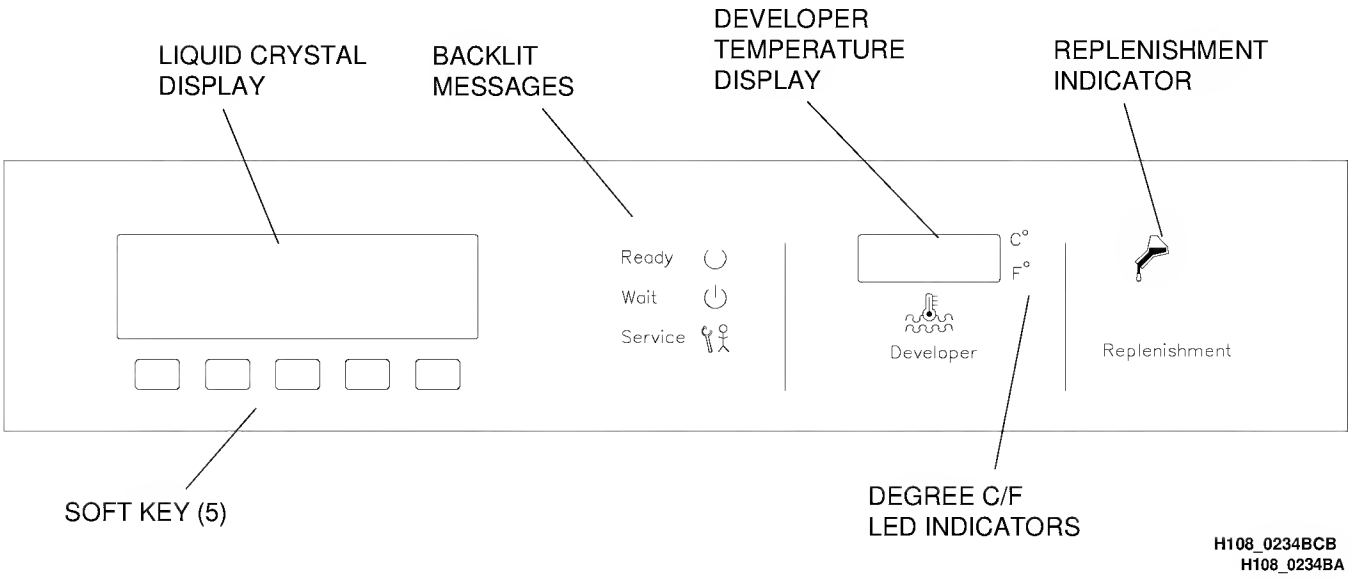


Figure 3 Display Panel on Receiving-End of the Processor

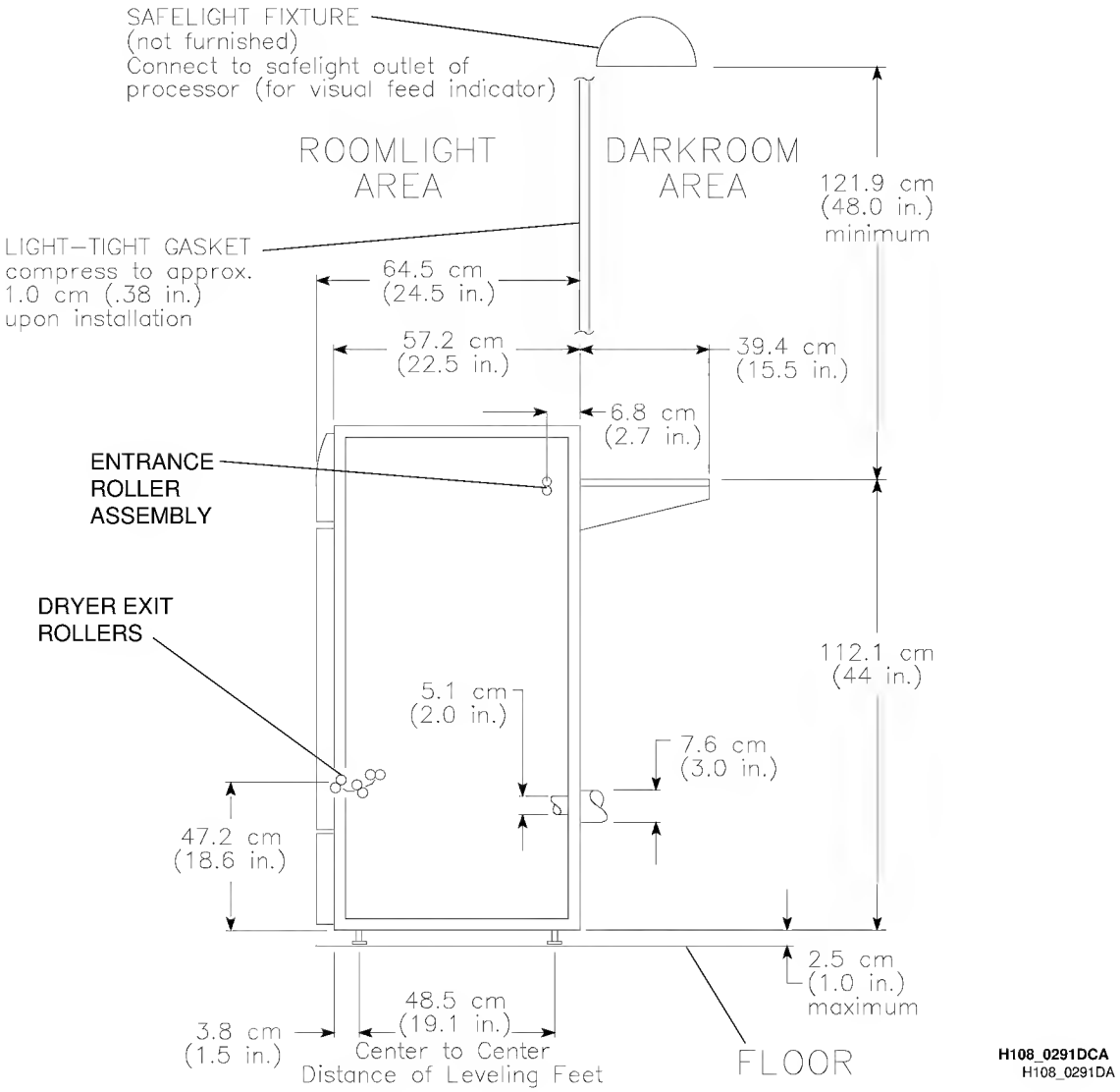


Figure 4 Side Dimensions

Table 1 Dimensions and Weight of the Processor

Description	Crated	Uncrated
Length	78.7 cm (31.0 in.)	62.2 cm (24.5 in.) Without feed tray 102.0 cm (40.0 in.) With feed tray
Width	88.9 cm (35.0 in.)	76.2 cm (30.0 in.)
Height	141.0 cm (55.5 in.)	123.2 cm (48.5 in.)
Weight (Tanks Empty)	225 kg (495 lb)	194 kg (427 lb)
Weight (Tanks Full)	Not Applicable	230 kg (507 lb)

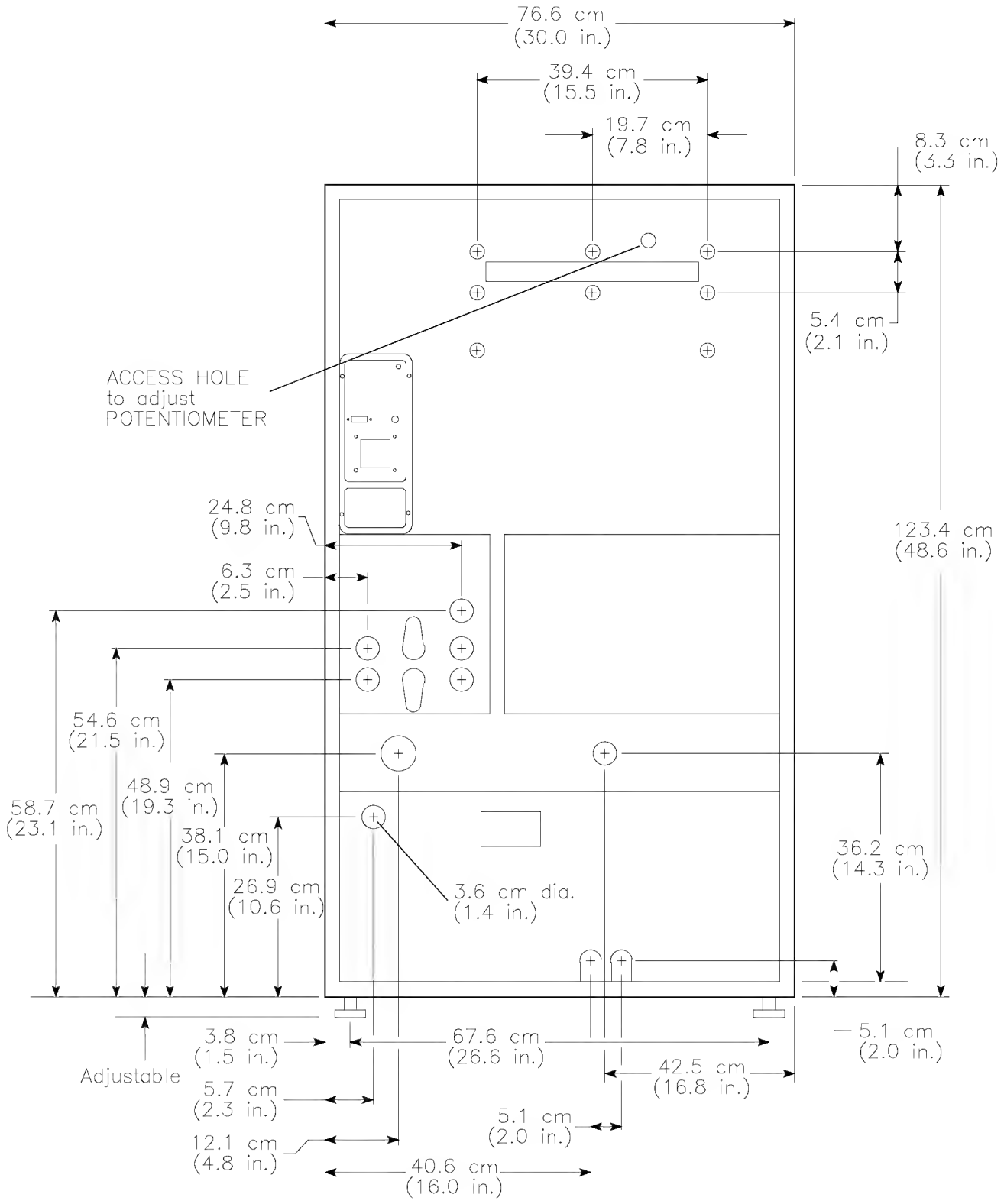


Figure 5 Feed-End Dimensions

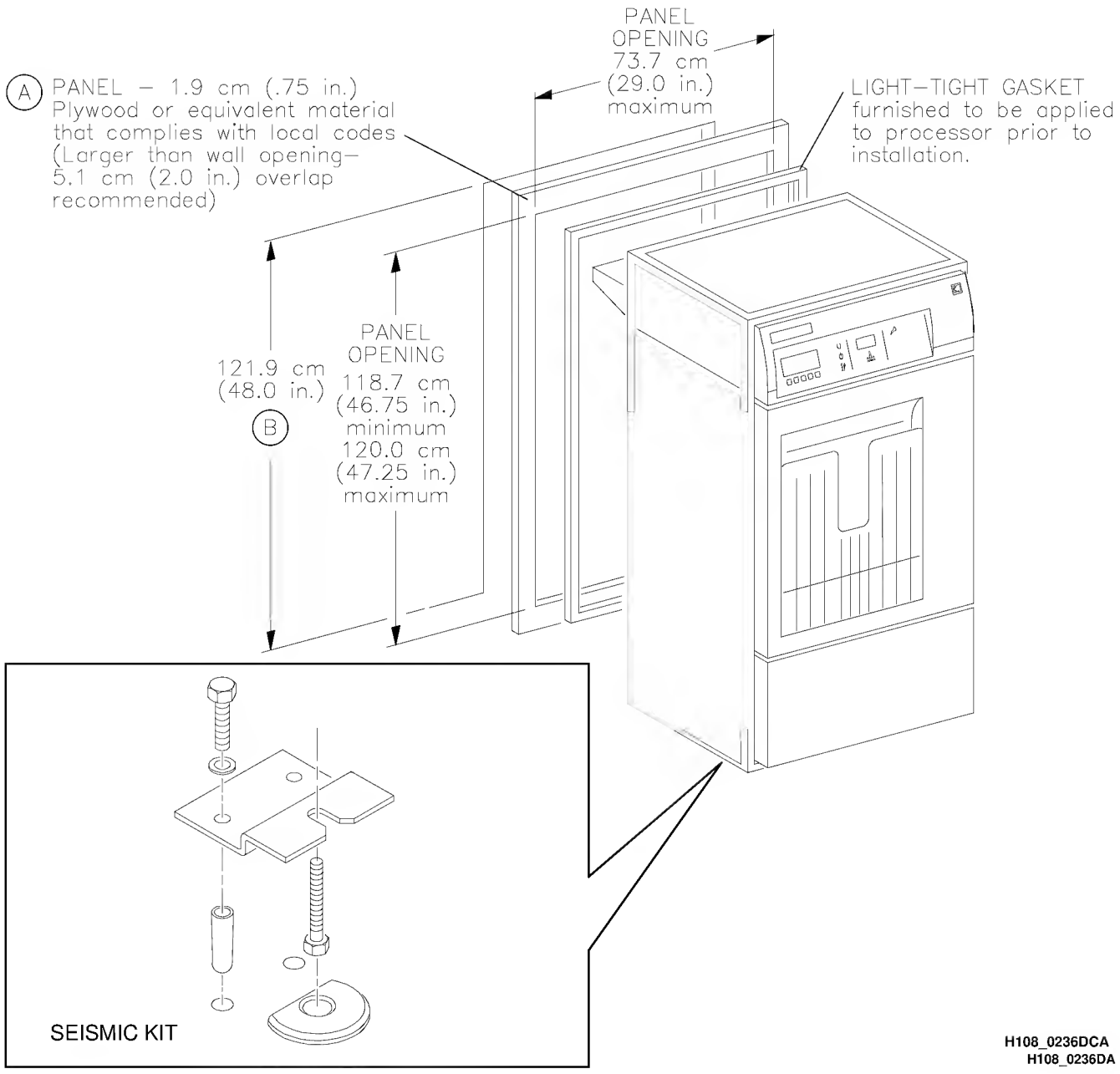


Figure 6 New Wall Installation - Feed End

A If the wall around the opening is straight and exactly perpendicular to the floor, this panel may not be necessary. The wall opening dimensions should match the inside dimensions of the panel opening.

B Make sure that the vertical dimension of 48 ± 1/16 in. for the wall opening is measured from the finished floor.

Film Entrance Dimensions

(1) Film feed should not extend outside of the shaded area. See Figure ??.

(2) The maximum depth a GUIDE SHOE, or other devices, can extend into the processor.

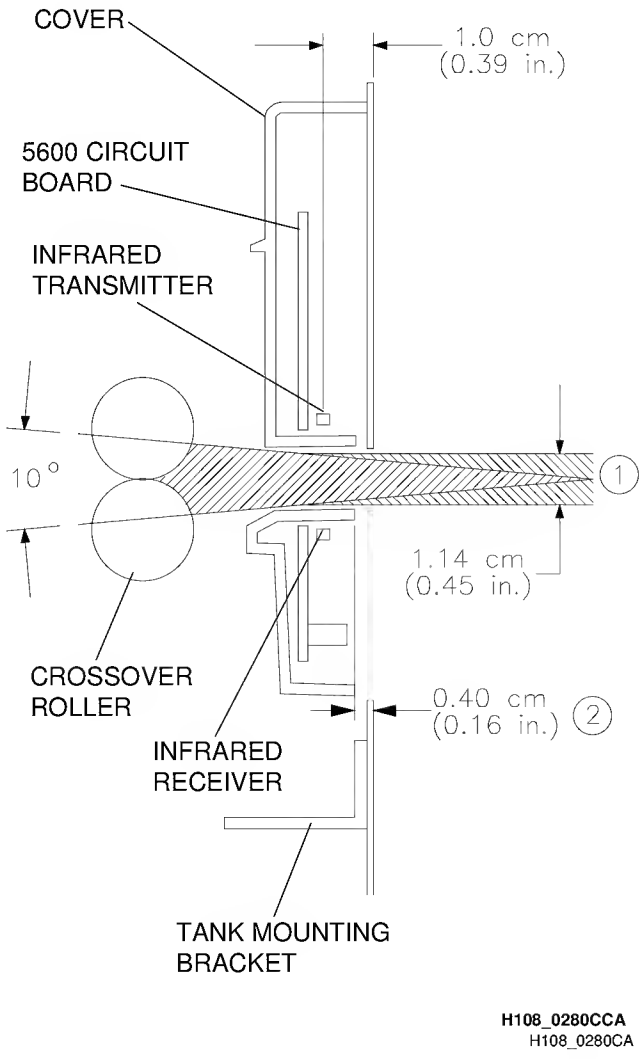


Figure 7 Film Entrance Dimensions

Electrical Requirements

Agency Listings

The processor has the following Agency listings:

- UL Listed to Standard #122
- CSA Certified to Standard C22.2 No. 950-M89
- TUV Licensed to EN 60950

Basic Requirements

- 35 A, single phase
  or
- 25 A, three phase
- single-phase 2-wire, or 3-phase 3 or 4-wire service
- earth ground

IMPORTANT

All electrical services, *including* **earth ground**, must comply with local and national electrical codes.

Standard Service Options

Table 2 Service Options

Voltage Volts	Frequency Hz	Service
200	50/60	2 Wire, Single Phase, plus Earth Ground
220	50/60	2 Wire, Single Phase, plus Earth Ground
230	50/60	2 Wire, Single Phase, plus Earth Ground
240	50/60	2 Wire, Single Phase, plus Earth Ground
100/200	50/60	3 Wire, Single Phase, plus Earth Ground
120/240	50/60	3 Wire, Single Phase, plus Earth Ground
200	50/60	3 Wire, 3 Phase, Delta, plus Earth Ground
120/208	60	4 Wire, 3 Phase, Wye, plus Earth Ground
127/220	50	4 Wire, 3 Phase, Wye, plus Earth Ground
220/380	50	4 Wire, 3 Phase, Wye, plus Earth Ground
230/400	50	4 Wire, 3 Phase, Wye, plus Earth Ground
240/415	50	4 Wire, 3 Phase, Wye, plus Earth Ground
120/208	60	3 Wire, Single Phase, plus Earth Ground
127/220	50	3 Wire, Single Phase, plus Earth Ground
220/380	50	3 Wire, Single Phase, plus Earth Ground
230/400	50	3 Wire, Single Phase, plus Earth Ground
240/415	50	3 Wire, Single Phase, plus Earth Ground

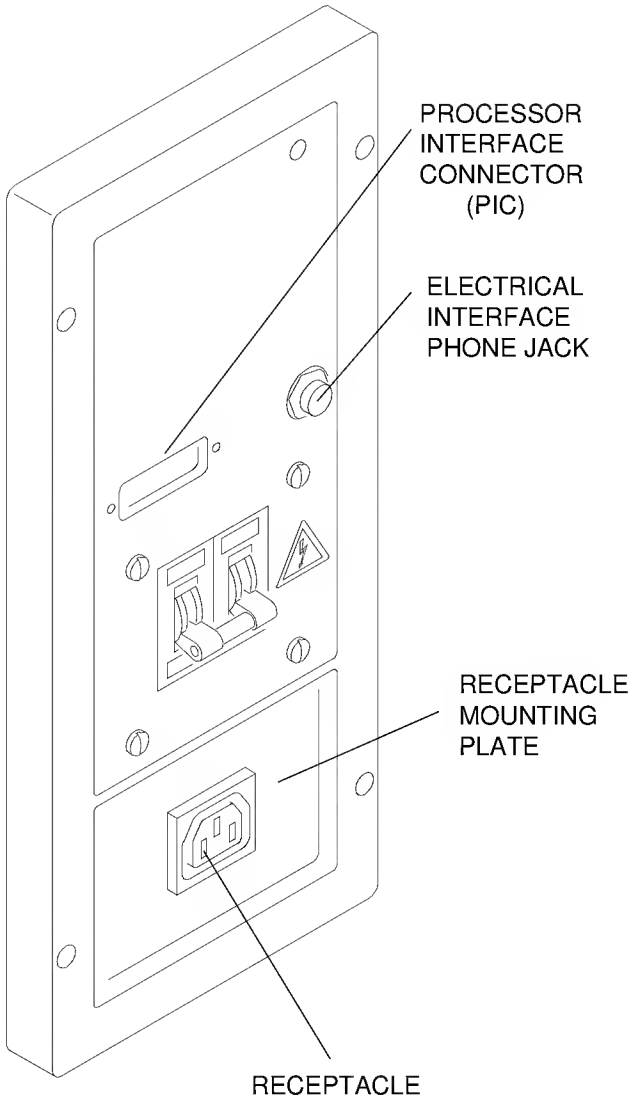


Figure 8 Control Panel

NOTE

The RECEPTACLE MOUNTING PLATE is removable for use of other receptacles.

Processor Interface Connector

PIC Connector on Processor: 15 Position Panel Mount Subminiature D, AMP Part No. 1-747299-0.

Customer Supplied Mating Connector: AMP Part No. 205206-1 or Equivalent.

Table 3 Pinout for the Processor Interface Connector (PIC) Port

PIN#	Signal Description	Type	Function
1	Shield	Ground	Connection for the cable's shield in an RS232 system.
2	Transmit Data (TxD)	Output	Data out from the processor in an RS232 system.
3	Receive Data (RxD)	Input	Data into the processor in an RS232 system.
4	Request to Send (RTS)	Output	Handshake line for the control of data out from the processor.
5	Clear to Send (CTS)	Input	Handshake line for the control of data into the processor.
6	Common/Return	Input	Signal common in an RS232 system and +5v return.
7	Processor Cycle C0	Output	TTL logic signal indicating processor cycle[1]. 0 is $\leq$ 0.5 V @ 4mA 1 is $\geq$ 3.84 V @ 4mA
8	Processor Cycle C1	Output	TTL logic signal indicating processor cycle[1]. 0 is $\leq$ 0.5 V @ 4mA 1 is $\geq$ 3.84 V @ 4mA
9	$\overline{\text{Run}}$	Input	TTL logic signal, active **LOW** input for placing processor in Run mode.
10	Alarm	Output	TTL logic signal, active **HIGH** indicating an alarm condition.
11	Service	Output	TTL logic signal, active **HIGH** indicating a fault requiring service.
12	Ready	Output	TTL logic signal, active **HIGH** indicating processor is operating within specifications.
13	$\overline{\text{Film Feed}}$	Output	TTL logic signal, active **LOW** indicating a sheet of film may be inserted into the processor.
14	Reserved for Future Use	Input	TTL logic signal input not used at this time.
15	+5 Volt DC (1 A maximum)	Output	Logic supply source of 5 V dc also used to indicate processor is on.

[1]Cycle	C1	C0
K/RA	1	1
Rapid	1	0
Standard	0	1
Extended	0	0

NOTE

The PIC Port was designed to operate one accessory at a time but can operate some combinations with the following restrictions.

- Only 1 accessory can use the serial communication lines (PINS 2 - 5).
- The TTL outputs (PINS 7 - 8 and 10 - 13) can each drive 3 TTL inputs. This allows the outputs to drive multiple accessories. The number of accessories that can be driven depends on the loading of each accessory. The total current drawn by all accessories must be less than 4 mA for each output.
- The TTL inputs (PINS 9 and 14) can be driven by an unlimited number of devices. All the devices must use open collector-type drivers or electro-mechanical switches to ground the inputs.

Interface Phone Jack Specification

Accepts a standard 3 circuit ¼ in. phone plug: SWITCHCRAFT No. 290 or equivalent.

Fixer Manager Connection

The 480 RA Processor provides CONNECTOR J100 to carry the signals required to operate the *Kodak X-Omat* Fixer Manager. See Figure ?? on page ??. The CONNECTOR is an AMP CPC Connector, AMP Part No. 211398-1.

PIN	Description
1	Ground
2	No Connection
3	No Connection
4	Ground
5	Replenish Pump On
6	Processor On
7	No Connection

NOTE

The "Replenish Pump On" and "Processor On" signals are 5-volt logic signals. A reading of 5 V dc indicates that the PIN is active. These PINS are designed to drive a maximum load of 4.8 mA. The "Processor On" signal is active when the processor is energized. The "Replenish Pump On" signal is active when the FIXER REPLENISHMENT PUMP is operating.

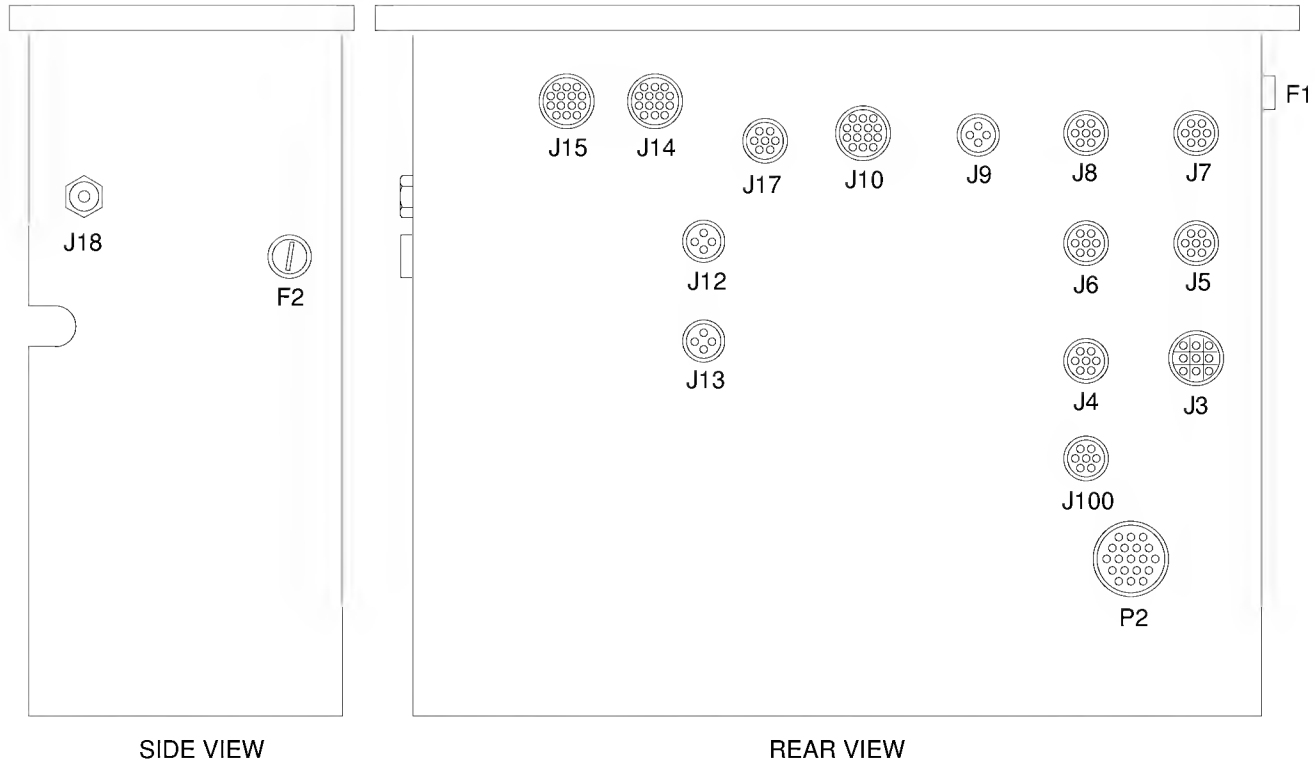


Figure 9 Electrical Box

Water Supply

IMPORTANT

- Water supply must comply with local codes; **do not** use iron piping.
- If the upper limit of the room ambient temperature or the water supply temperature is exceeded, the developer and fixer temperatures may not be controlled correctly.
- Tempered water service is suggested for cleaning the processor and for mixing chemicals manually.

Temperature:	4°C (40°F) to 32°C (90°F)
Pressure:	173 to 448 kPa (25 to 65 psi); Install regulator if required.
Flow:	Controlled within the processor to 5.7 L/min (1.5 gal/min), ±10%
Filtration:	50 micron filter required

Drain

WARNING

- Drains must be made of chemically resistant, non-corrosive material. Use PVC or the equivalent.
- The drain must have a minimum diameter of 7.6 cm (3 in.) and be free of obstruction.
- Drain service must comply with all local codes.
- Locate the drain within 1.5 m (60 in.) of the processor.
- The drain line should slope gradually downward to the floor drain.

Capacity:	15 L/min (4 gal/min)
Connection:	Open drain; avoid a solid connection to the processor to eliminate suction conditions

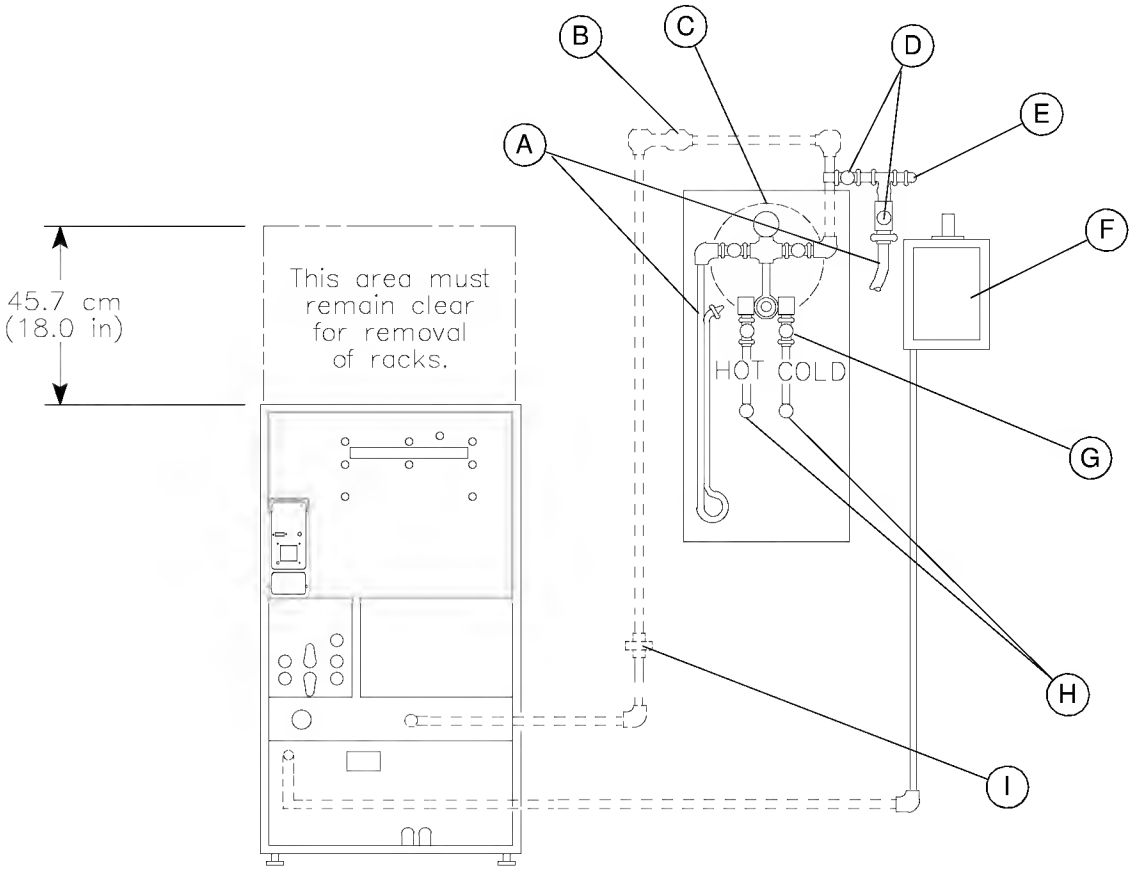
Main Power Disconnect (Wall mounted, not furnished)

A main power disconnect switch, as shown in Figure ??, consisting of a 2-pole for single-phase and 3-pole for 3-phase, thermomagnetic circuit breaker with solid neutral and common trip **or** a fused disconnect switch **must** be—

(1) located on a wall adjacent to the processor in the lighted area.

(2) easily accessible from the processor site.

(3) visible from the processor site.



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H108_0009DA

Figure 10 Electrical and Water Connections

Table 4 Electrical and Water Connections (continued)

A	Service Hose - suggested length to reach the Processor and Replenisher Tanks.
B	13 mm (½ in.) NPT Check Valve
C	*Kodak* Thermostatic Mixing Valve 13 mm (½ in.) NPT available from Eastman Kodak Company, Part No. 467621 (optional.)
D	Shutoff Valves 13 mm (½ in.) NPT. Two additional required. Available from Eastman Kodak Company, Part No. 459981 (Not supplied with the Processor).
E	Cold Water Supply 13 mm (½ in.) NPT
F	35 AMP - 2 POLE for single phase, or 25 AMP - 3 POLE for 3-phase service, Thermomagnetic Circuit Breaker. (Locate safe distance from water service.) (Not supplied with the Processor.)
G	Shutoff Valves 13 mm (½ in.) NPT. Two additional required. Available from Eastman Kodak Company, Part No. 459981.
H	Hot and Cold Water Supply 13 mm (½ in.) NPT.
I	13 mm (½ in.) NPT Union. Locate as close to the Processor as possible.

IMPORTANT

- A mixing valve is not required for the processor if incoming water temperature is between 4° and 32°C (40° and 90°F).
- Follow local electrical and plumbing codes.
- Pass service through the wall to the feed end of the processor in the darkroom. Service controls may be located on either side of the processor for easy accessibility.

Room Ambient Conditions	**Temperature:**	16°C (60°F) to 30°C (86°F)
	Humidity:	15% to 76% relative humidity, non-condensing
Air and Heat	**Air Exhaust (full load):**	• 75 CFM maximum • Temperature: 66°C (150°F) maximum • Moisture: 600 grains/min
	Heat Load to Room:	2 Kw (6824 BTU/hr or 1719 kilocalorie)
	Building Exhaust Duct:	Use AIR METER TL-2431 and modified J TUBE (CHECK TUBE 592380) to measure negative static pressure in the EXHAUST DUCT 30.5 cm (12.0 in.) from the end that is to be connected to the processor. See Figures ?? and ??.

Venting

IMPORTANT

The processor must be off and the duct must not be connected when measuring the static pressure.

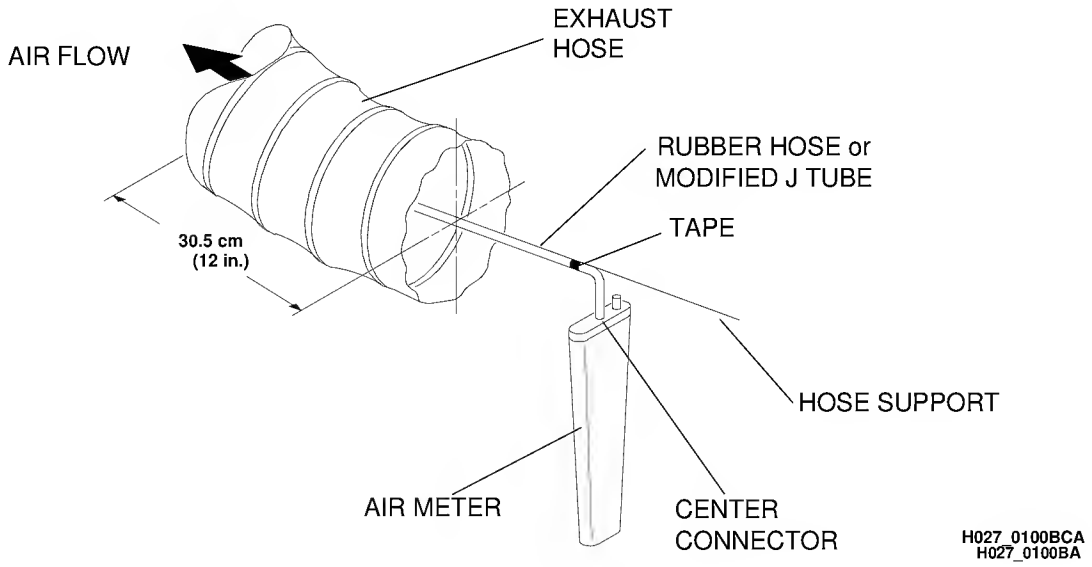

Figure 11 Measuring the Static Pressure

Adjust the clearance between the building exhaust duct and the duct from the processor as shown in Figure ?? to obtain the required static pressure outlined in Table ??.

Table 5 Required Static Pressures

Duct Diameter	Negative Static Pressure, (Water Head)	
	MIN	MAX
7.6 cm (3.0 in.)	0.76 mm (0.03 in.)	1.02 mm (0.04 in.)
10.2 cm (4.0 in.)	0.25 mm (0.01 in.)	0.51 mm (0.02 in.)

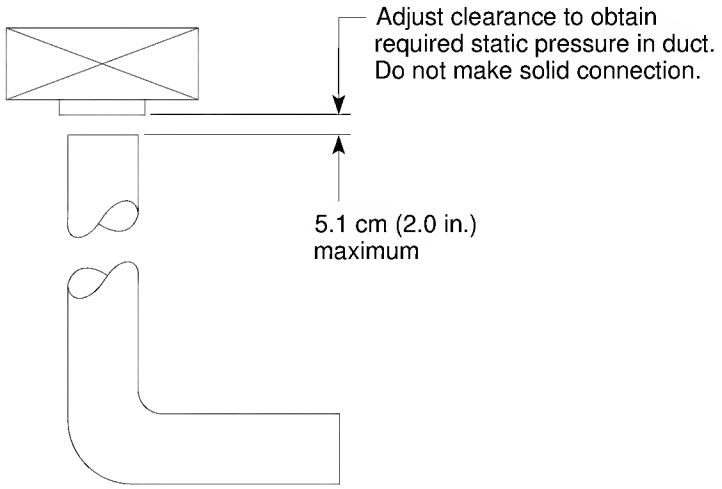

Figure 12 Exhaust Requirements

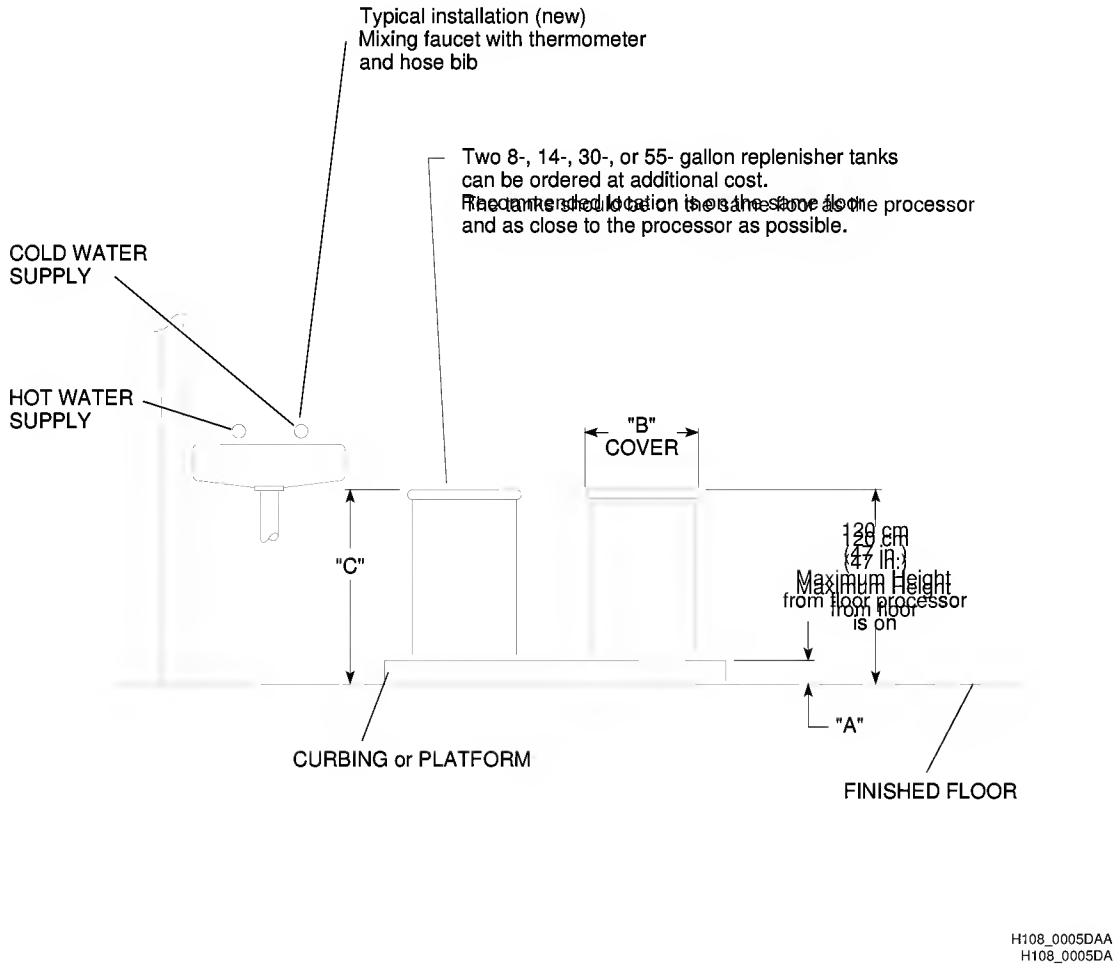

Figure 13 Replenisher Tanks

Table 6 Dimensions for Replenisher Tanks

DESCRIPTION	DIMENSION	14 GAL	30 GAL	55 GAL
Maximum Platform Height	"A"	48.3 cm (19.0 in.)	35.6 cm (14.0 in.)	15.2 cm (6.0 in.)
Tank Diameter	"B"	43.2 cm (17.0 in.)	55.9 cm (22.0 in.)	61.0 cm (24.0 in.)
Tank Height	"C"	58.4 cm (23.0 in.)	70.50 cm (27.75 in.)	90.80 cm (35.75 in.)
External Replenisher Tank Area	"D" x "E" (MIN)	61.0 X 127.0 cm (24.0 X 50.0 in.)	61.0 x 152.4 cm (24.0 x 60.0 in.)	66.0 x 172.7 cm (26.0 x 68.0 in.)

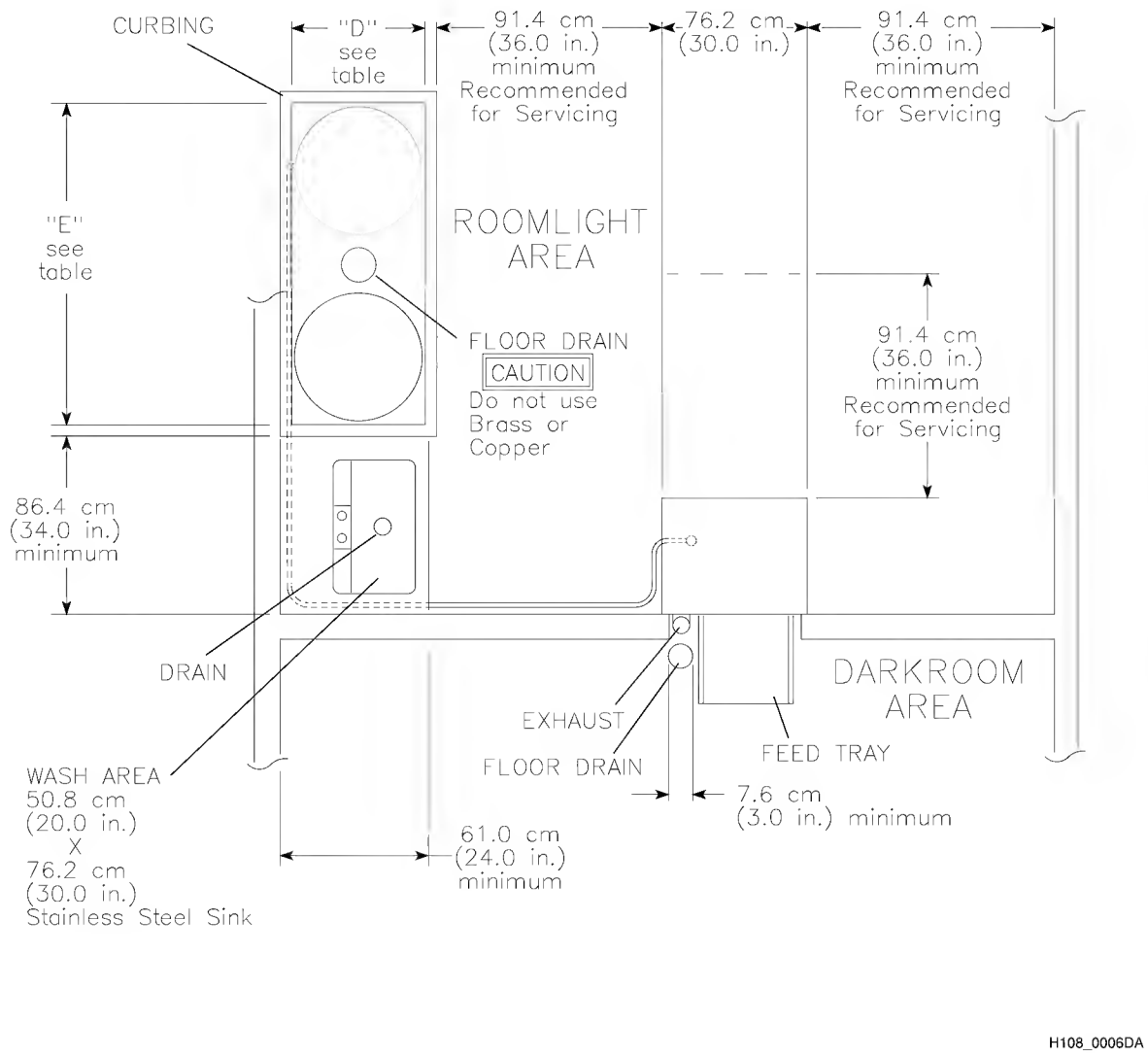

Figure 14 Recommended Room Layout Showing Replenisher Tanks and Drain Locations

Table 7 Maintenance and Operation Access Requirements

Description	Recommendation
Receiving End of Processor	91.4 cm (36.0 in.)
Feed End of Processor	91.4 cm (36.0 in.)
Drive Side of Processor	91.4 cm (36.0 in.)
Non-Drive Side of Processor	91.4 cm (36.0 in.)
Top of Processor	91.4 cm (36.0 in.)

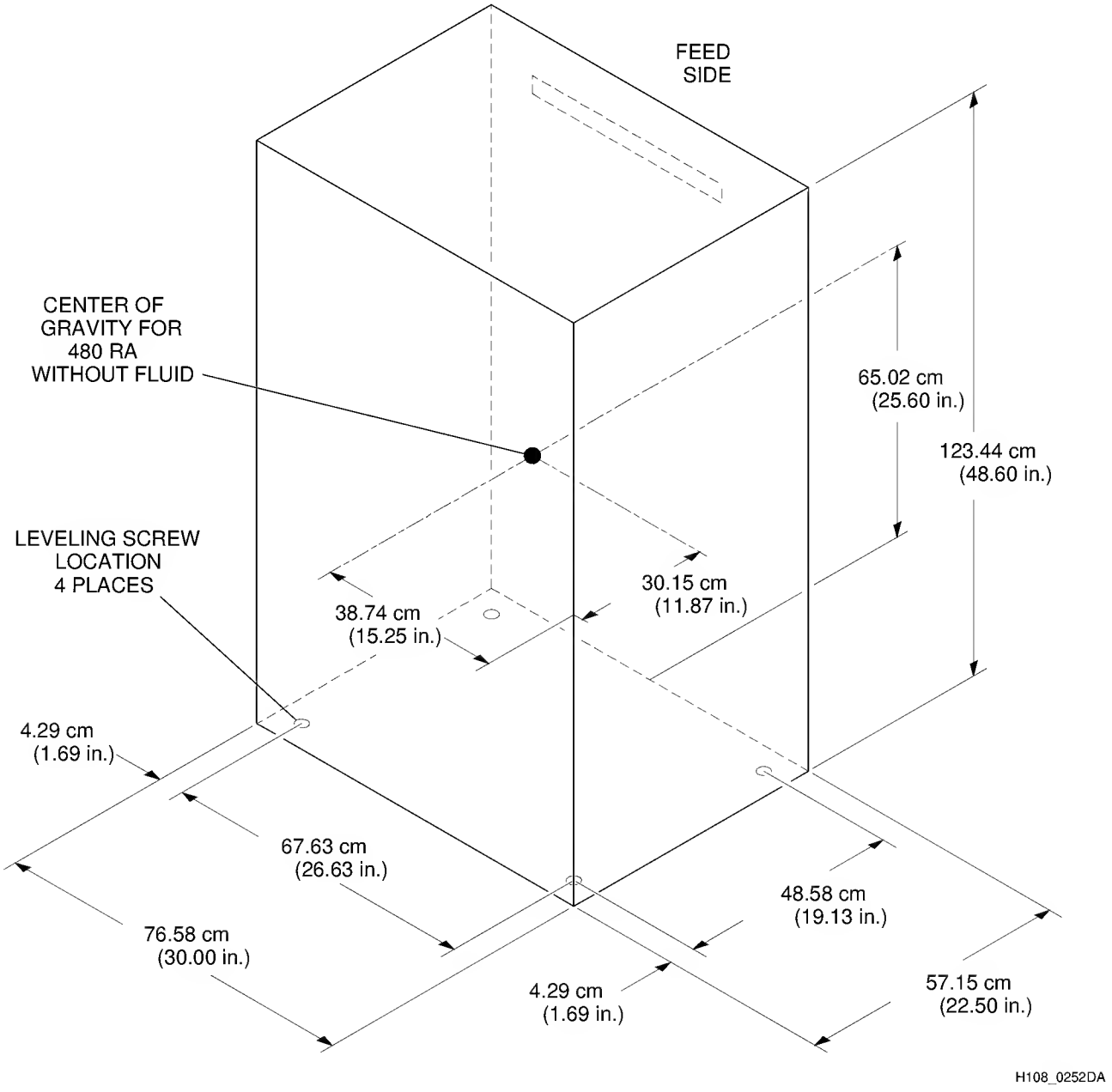

Figure 15 Center of Gravity

NOTE

Center of gravity is shown for the processor with the DEVELOPER, FIXER, and WASH TANKS empty.

Kodak warrants this *Kodak X-Omat* 480 RA Processor to function correctly for one year from the date of initial installation, when installed within one year from date of shipment.

Warranty Repair Coverage

If this equipment does not function correctly during the warranty period, the dealer in *Kodak X-Omat* Processors who sold the equipment will provide or arrange for repair of the equipment during the dealer's normal working hours. Such repair service will include any adjustments and/or replacement of parts required to maintain your equipment in good working order.

How To Obtain Service

Should equipment require service, refer to the sales contract for details on whom to call for service, or contact the dealer in *Kodak X-Omat* Processors who sold the equipment.

Limitations

Warranty service is limited to the contiguous United States, the island of Oahu in Hawaii, and certain areas of Alaska.

This warranty does not cover—

- circumstances beyond the control of Kodak,
- misuse,
- abuse,
- attachments,
- accessories,
- alterations not marketed by Kodak (including service or parts to correct problems resulting from the use of such attachments, accessories, or alterations),
- failure to follow the operating instructions as recommended by Kodak,
- supply items.

Kodak makes no other warranties, expressed or implied, for this equipment.

Repair without charge is the only obligation of both Kodak and the dealer under this warranty. **Kodak will not be responsible for any consequential or incidental damages resulting from the sale, use, or incorrectly functioning of this equipment, even if loss or damage is caused by the negligence or other fault of Kodak.**

Such damages for which Kodak **will not** be responsible, include, but are not limited to, loss of revenue or profit, downtime costs, loss of use of the equipment, cost of any substitute equipment, facilities or services or claims of your customers for such damages.

This limitation of liability will not apply to claims for injury to persons or damage to property caused by the sole negligence or fault of Kodak or by persons under its direction or control.

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